

value of the inductive element;

a control line operably connected to the ferro-electric material;

a control source electrically connected to the control line, the control source configured to transmit a control signal on the control line;

wherein the ferro-electric material, responsive to the control signal, adjusts the value to change the impedance of the matching circuit.

2. (Amended Once) The communication device of claim 1, wherein the quality factor of the matching circuit, when operated in a temperature range between about -50 degrees Celsius and 100 degrees Celsius, is greater than about 80 in a frequency range between 0.25 GHz and 7.0 GHz.

12. (Amended Once) A communication device comprising:

a capacitive element and an inductive element arranged as a matching circuit, the matching circuit having an impedance;

a ferro-electric material positioned to adjust a value that is a member of the group consisting of a capacitance value of the capacitive element and an inductance value of the inductive element;

a control line operably connected to the ferro-electric material;

a control source electrically connected to the control line, the control source configured to transmit a control signal on the control line;

wherein:

the ferro-electric material, responsive to the control signal, adjusts the value to change the impedance of the matching circuit, and the control signal comprises a direct current voltage;

the control source is coupled to a band select signal, the band select signal comprising a signal identifying a band in which the matching circuit is to operate; and

the control source comprises:

a lookup table comprising a number representing the direct current voltage value corresponding to the band in which the matching circuit is to operate; and  
a voltage source for generating the direct current voltage responsive to the number representing the direct current voltage value.

13. (Amended Once) A communication device comprising:

a capacitive element and an inductive element arranged as a matching circuit, the matching circuit having an impedance;  
a ferro-electric material positioned to adjust a value that is a member of the group consisting of a capacitance value of the capacitive element and an inductance value of the inductive element;  
a control line operably connected to the ferro-electric material;  
a control source electrically connected to the control line, the control source configured to transmit a control signal on the control line;  
wherein the ferro-electric material, responsive to the control signal, adjusts the value to change the impedance of the matching circuit, and  
wherein the control source comprises a power detector which detects a power level of an RF signal and varies the control signal responsive to the power level of the RF signal.

24. (Amended Once) A communication device comprising:

a capacitive element and an inductive element arranged as a matching circuit, the matching circuit having an impedance;

a ferro-electric material positioned to adjust a value that is a member of the group consisting of a capacitance value of the capacitive element and an inductance value of the inductive element;

a control line operably connected to the ferro-electric material;

a control source electrically connected to the control line, the control source configured to transmit a control signal on the control line;

an antenna coupled to a first port of the matching circuit; and

a diplexer coupled to a second port of the matching circuit, and

wherein the ferro-electric material, responsive to the control signal, adjusts the value to change the impedance of the matching circuit.

25. (Amended Once) A communication device comprising:

a capacitive element and an inductive element arranged as a matching circuit, the matching circuit having an impedance;

a ferro-electric material positioned to adjust a value that is a member of the group consisting of a capacitance value of the capacitive element and an inductance value of the inductive element;

a control line operably connected to the ferro-electric material;

a control source electrically connected to the control line, the control source configured to transmit a control signal on the control line;

an antenna coupled to a first port of the matching circuit; and

a diplexer coupled to a second port of the matching circuit, and

wherein the ferro-electric material, responsive to the control signal, adjusts the value to change the impedance of the matching circuit.